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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/615,574

07/08/2003

Arthur J. Redfern

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EXAMINER

KASRAIAN, ALLAHYAR

ART UNIT

PAPER NUMBER

2617

NOTIFICATION DATE

DELIVERY MODE

07/08/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/615,574	Applicant(s) REDFERN ET AL.	
	Examiner ALLAHYAR KASRAIAN	Art Unit 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 June 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 06/12/2008 has been entered.

Specification

2. The amendment filed 06/12/2008 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows:

a) On lines 1-2 of the abstract, "A computer readable medium encoded with a hyper frame".

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Objections

3. **Claim 13** is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Examiner assumes **claim 13**

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depends on **claim 9**, --The computer-readable medium encoded with a hyperframe of claim 9--.

4. **Claim 14** is objected to because of the following informalities:

a) On **line 11** of **claim 14**, insert --said-- before "signal";

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. **Claims 9-13** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Consider **claim 9**, on lines 1-2 of the claim, "A computer-readable medium encoded with a hyperframe" in a new subject matter which was not described in the specification.

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Claims 10-13 also disclose the new matter “The computer-readable medium encoded with a hyperframe” and are they rejected by the virtue of their dependency on **claim 9**.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless – (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. **Claims 8-13 and 15** are rejected under 35 U.S.C. 102(b) as being anticipated by **Chow (US Patent # 6009122)**.

Consider **claim 8**, Chow discloses a method of initialization for a multitone system using a hybrid time division duplex (TDD) and frequency division duplex (FDD) system with a hyperframe structure, comprising:

comparing a first direction and a second direction data rates for a two-band duplex to threshold data rates (FIG. 11, col. 16 lines 36-54 and col. 17 lines 1-4); and
when said data rates fail to meet said threshold data rates, comparing data rates for a hybrid duplex to said threshold data rates, wherein said hybrid duplex uses hyperframes with structure (FIG. 11, col. 16 lines 36-54 and col. 17 lines 1-4; FIG. 7, col. 13 lines 15-17 for hybrid circuit 706):

wherein a first set of are a plurality of type 1 symbols, for transmission in said first direction in a first set of subchannels and transmission in said second direction in a

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second set of subchannels where said first and said second directions differ and said first set of subchannels and second set of subchannels are different (FIG. 4B for 9-1-9-1 mixture, col. 9 lines 14-31, col. 10 lines 21-56; consider a first set of symbols as frames with subchannels in downstream direction and subchannels in frames with A, B and C in upstream direction);

wherein a second set of symbols are a plurality of type 2 symbols, where transmission is only in the first direction in the first set of subchannels (FIG. 4B for 9-1-9-1 mixture, col. 9 lines 14-31, col. 10 lines 21-56; consider subchannels in frames D, E, F and G in upstream direction as the second set of symbols); and

wherein a third set of symbols are a plurality of type 3 symbols, where transmission is only in the first direction in subchannels different from that of the set of subchannels used for type 2 symbols (FIG. 4B for 9-1-9-1 mixture, col. 9 lines 14-31, col. 10 lines 21-56; consider subchannels in frames H and J in upstream direction as the third set of symbols).

Consider **claim 9**, Chow discloses a computer-readable medium encoded with a hyperframe for use in a communication system including a plurality of processor circuitry operable to provide a discrete multitone system, said hyperframe comprising (FIG. 4A and 4B, consider superframe as hyperframe):

a first set of symbols is a type 1 frame comprising type 1 symbols, where transmission is in a first direction using a first direction set of subchannels and second direction using a second direction set of subchannels (FIG. 4B for 9-1-9-1 mixture, col. 9 lines 14-31, col. 10 lines 21-56; consider a first set of symbols as frames with

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subchannels in downstream direction and subchannels in frames with A, B and C in upstream direction);

a second set of symbols is a type 2 frame comprising type 2 symbols, where transmission is only in the first direction using the first direction set of subchannels (FIG. 4B for 9-1-9-1 mixture, col. 9 lines 14-31, col. 10 lines 21-56; consider subchannels in frames D, E, F and G in Upstream direction as the second set of symbols); and

a third set of symbols is a type 3 frame comprising type 3 symbols, where transmission is only in the direction using subchannels different from that of the set of subchannels used for the type 2 symbols (FIG. 4B for 9-1-9-1 mixture, col. 9 lines 14-31, col. 10 lines 21-56; consider subchannels in frames H and J in upstream direction as the third set of symbols),

wherein the total of symbols is N symbols comprised of n_1 type 1 symbols, n_2 type 2 symbols and n_3 type 3 symbols, where $n_1 + n_2 + n_3 = N$ (consider $n_1 = 12$ for type 1, $n_2 = 4$, and $n_3 = 2$, then $N = 18$ total of symbols in upstream or downstream direction).

Consider **claim 10 as applied to claim 9 above**, Chow further discloses the set of subchannels used by the type 2 symbols for transmission in the first direction does not include the set of subchannels used for transmission in the second direction by the type 1 symbols (FIG. 4B, the set of subchannels in frames D, E, F, and G in Upstream direction do not include the set of subchannels in frames A, B and C in Upstream direction).

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Consider **claim 11 as applied to claim 9 above**, Chow further discloses the set of subchannels used by the type 3 symbols for transmission in the first direction includes the set of subchannels used for transmission in the second direction by the type 1 symbols (FIG. 4B, the set of subchannels in frames H and J in Upstream direction do not include the set of subchannels in frames A, B and C in Upstream direction).

Consider **claim 12 as applied to claim 9 above**, Chow further discloses the N symbols are ordered such that there are n_1 type 1 symbols, followed by 1 type 2 symbol, followed by n_3 type 3 symbols, followed by 1 type 2 symbol (the arrangement could be type 1 with $n_1 = 10$ having 9 subchannels downstream and 1 subchannels in frame A upstream followed by type 2 with B subchannel in upstream and followed by type 3 with $n_3 = 5$ with subchannels in frames B, C, D, E and F followed by subchannels in frame G as type 2, then $N = 18$).

Consider **claim 13 as applied to claim 9 above**, Chow further discloses the first direction is downstream, from a central office and the second direction is upstream, to the central office (FIG. 4B, col. 1 lines 31-45).

Consider **claim 15 as applied to claim 8 above**, Chow further discloses the first direction is downstream, from a central office and the second direction is upstream, to the central office (FIG. 4B, col. 1 lines 31-45).

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9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the Examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the Examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. **Claim 14** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Chow (US Patent # 6009122)** in view of **Kumar (US Patent Application Pub. # 20030086487)**.

Consider **claim 14**, Chow discloses a method of initializing a discrete multitone system with a hyperframe in a communication circuitry including a signal processor, comprising:

determining a target data rate for the first direction and the second direction including type 1 and type 3 symbols in the signal-to-noise (SNR) measurement phase (FIG. 11 for steps 1102 and 1104, col. 16 lines 36-54; FIG. 4B for any arrangement between frame to define type 1, 2 and 3);

performing a bit loading for the type 1, type 2 and type 3 symbols to determine the data rates supported in the first direction and the second direction for each type of symbol (FIG. 11 for steps 1108 and 1110, col. 16 lines 55-67); and

signal processor encoding the hyperframe, said encoding comprising (FIG. 5, col. 11 lines 27-67, col. 12 lines 1-26):

choosing all type 1 symbols if the type 1 symbol is able to meet the target data rates for the first direction and the second direction (FIG. 11 for step 1106, col. 16 lines 36-54, selecting a superframe format); and

choosing a mix of type 1, type 2 and type 3 symbols to most closely meet the target data rates for the first direction and the second direction if all type 1 symbols are unable to meet the target data rate (FIG. 11 for step 1106, col. 16 lines 36-54, selecting a superframe format).

However, Chow fails to disclose determining the allowed set of power spectral density (PSD) masks for a first direction and a second direction of a type 1, type 2 and type 3 symbols,

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In the same field of endeavor, Kumar discloses determining the allowed set of power spectral density (PSD) masks for a first direction and a second direction of a type 1, type 2 and type 3 symbols (FIGS. 3, 4 and 5 par. 0016, and description in par. 0010-0015, consider any combination between a+x channels to define type 1, type 2 and type 3).

Response to Arguments

11. Applicant's arguments filed 06/12/2008 have been fully considered but they are not persuasive.

On page 8 of the applicant's argument/remarks, Applicant argues, "The instant application claims a hybrid time division duplex (TDD) and frequency division duplex (FDD) system with a hyperframe structure, where the hyperframe structure is of the format: x downstream and upstream frames (SYMBOLS) (instead of downstream only), 1 partial band downstream frame (SYMBOL) (instead of quiet), y full band downstream frame (SYMBOLS) (equivalent), and 1 partial band downstream frame (SYMBOL) (instead of quiet). This type of hybrid system is not taught by Chow, alone or in combination."

Examiner assumes that the part of the argument, "a hybrid time division duplex (TDD) and frequency division duplex (FDD) system with a hyperframe structure" regards to claim 9 which is only indicated in preamble of the claim. Therefore, it has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not

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depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

For the second part of the argument regards to the hyperframe structure, Examiner disagrees with the Applicant's argument since how to define frames or symbols to be arranged as type 1, type 2 or type 3 is optional and can be based on the interpretation of the claims. The language of the independent claims are broad enough that can be read on the way Examiner considers the arrangement of type 1, 2, or 3 frames (symbols) based on FIG. 4B of Chow (consider type 1 frames with subchannels in downstream direction and subchannels in frames with A, B and C in upstream direction; consider subchannels in frames D, E, F and G in upstream direction as type 2 of frames; consider subchannels in frames H and J in upstream direction as type 3 of frames).

Therefore, claims 8-13 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Chow, and claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chow in view of Kumar.

Conclusion

12. Any response to this Office Action should be **faxed to (571) 273-8300 or mailed to:**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Hand-delivered responses should be brought to

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Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

13. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Allahyar Kasraian whose telephone number is (571) 270-1772. The Examiner can normally be reached on Monday-Thursday from 8:00 a.m. to 5:00 p.m.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Rafael Pérez-Gutiérrez can be reached on (571) 272-7915. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 571-272-4100.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

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/Allahyar Kasraian/
Examiner, Art Unit 2617

A.K./ak

July 2, 2008

/Rafael Pérez-Gutiérrez/
Supervisory Patent Examiner, Art Unit 2617